

2011 Military Health System Conference

Complex Chronic Conditions among TMA Beneficiaries

The Quadruple Aim: Working Together, Achieving Success

Diana D. Jeffery, Ph.D.

26 January 2011



The Quadruple Aim



This briefing supports aims:

- **Per Capita Cost**

- Creating value by focusing on quality, eliminating waste, and reducing unwarranted variation; considering the total cost of care over time, not just the cost of an individual health activity

- **Population Health**

- Reducing the generators of ill health by encouraging healthy behaviors and decreasing the likelihood of illness through focused prevention and the development of increased resilience



Research Team



DoD, Assistant Secretary of Defense (Health Affairs), TRICARE Management Activities, Health Program Analysis & Evaluation

Diana D. Jeffery, Ph.D.

Thomas V. Williams, Ph.D.

George Washington University

Julia Hidalgo, Sc.D. (Primary Contractor)

Hines VA Hospital and University of Illinois at Chicago (Subcontractor)

Todd A. Lee, PharmD, Ph.D. Neil Jordan, Ph.D.

Min-Woong Sohn, Ph.D. Kevin T. Stroupe, Ph.D.

Brian Bartle, M.P.H.

Primary Findings



- Prime enrollees have higher proportion of asthma, depression, lower back pain, and PTSD but are less likely to have multiple chronic conditions overall; reflects younger age and inclusion of active duty
- Compared to non-Prime enrollees, Prime enrollees generally have higher costs after adjusting for age, region, sex, and health care utilization
- Based on total claims data, Purchased Care is more costly for the management of complex chronic illness compared to Military Treatment Facility Direct Care controlling for age, region, sex, and health care utilization



Primary Findings, cont.

- Enrollees with combinations of non-concordant conditions cost more (e.g., depression & lower back pain)
- Mental health conditions are major contributors to increased costs and resource use among those with complex chronic conditions

Research Objectives & Outcomes



- Objectives
 - Examine rates, health care utilization and costs among TMA beneficiaries with multiple chronic conditions
 - Compare rates of complex chronic illness between Prime and non-Prime enrollees
- Outcomes
 - Rates of selected complex chronic illnesses, both single conditions and multiple chronic condition clusters
 - Location of care: outpatient visits, ED visits, hospitalizations

Costs by TRICARE Prime status and location of

Research Rationale



- Complex chronic illnesses are often described and studied in isolation
- Large segment of the U.S. population has multiple chronic conditions
 - Among adults age 18-64, 31.8% of those with private health insurance and 45.1% of those with only public insurance have two or more chronic conditions*
 - Among adults age 18-64, prevalence of chronic diseases is highest for hypertension, mood disorder, diabetes **

*Machlin, S. & Woodwell, D. (2009). Agency for Health Research & Quality, Statistical Brief #243.

2011 MHS Conference
**Druss BG, Marcus SC, Olfson M. et al. (2001). *Health Affairs*.

Definitions: Complex Chronic Illness



- Complex Chronic Illness (CCI)
 - Defined by Agency for Healthcare Research and Quality (AHRQ) as conditions with **at least one year duration** and which impact life style (AHRQ, Statistical Brief #243)
 - National Committee for Quality Assurance (NCQA) defines chronic conditions by high-cost conditions
- Multiple Chronic Conditions (MCC)
 - Two or more of the complex conditions defined by NCQA and AHRQ

Selected Chronic Conditions



- Priority conditions identified by AHRQ and Centers for Medicare & Medicaid Services plus conditions important to DOD (PTSD, Low Back Pain)

| | |
|--|-------------------------------|
| Asthma | COPD |
| Diabetes | Hypertension |
| Depression | Ischemic heart disease |
| Serious and persistent mental illness | Stroke |
| Post-traumatic stress disorder | Low back pain |

Data Sources



- Defense Enrollment Eligibility Reporting Systems (DEERS)
- Direct Care claims: Standard Inpatient Data Record, Standard Ambulatory Data Record
- Purchased Care claims: Health Care Services Records, TRICARE Encounter Data – Institutional (TED-I)
- All - ICD9 and CPT codes, Pharmacy Detail Transaction Service (PDTS)



Methods: FY06 Cohort

- Cohort of TMA beneficiaries with continuous enrollment over 2 years (FY06 – FY07), age 18 – 64 in FY06, and alive through FY06
 - Chronic conditions identified in FY06
 - Costs of care measured in FY07
- Conditions selected based largely on NCQA HEDIS criteria (e.g. 1 inpatient event, 2 outpatient events or Rx use)
- Clusters of conditions defined as mutually exclusive combinations (e.g. diabetes + hypertension; lower back pain + depression + diabetes)



Methods: Cohort

Inclusion/Exclusion Criteria

- Included all categories of benefits:
 - PRIME
 - PRIME Remote
 - Prime Remote Overseas
 - Standard & Extra
 - Standard Overseas
 - Reserve Select
 - Retired Reserve

RESULTS: FY06 Cohort Characteristics



MCC Group is older, more likely to be female, retirees or spouses of retirees, and living in the South.

| | MCC Group | No MCC Group | p |
|----------------------------|-----------|--------------|-------|
| N= | 969,359 | 2,907,007 | |
| Average Age | 47.0 | 36.1 | <.001 |
| Male | 42.8 | 53.6 | <.001 |
| DEERS beneficiary category | | | <.001 |
| e.g. Retirees | 29.3% | 14.7% | |
| 2011 MHS Conference Region | | 13 | <.001 |

RESULTS. Number of FROG Patients with Complex Chronic Conditions



| Conditions | N = 969,359 | % |
|---|----------------|------|
| Hypertension (HTN) | 473,635 | 48.9 |
| Diabetes | 228,295 | 23.6 |
| Depression | 219,181 | 22.6 |
| Lower Back Pain (LBP) | 215,056 | 22.2 |
| Asthma | 56,732 | 5.9 |
| COPD | 35,685 | 3.7 |
| Serious, persistent mental illness (SPMI) | 33,153 | 3.4 |

Number of Patients with Multiple Chronic Conditions and % Total FY07 Costs



| # MCC's | FY07 Costs | | | |
|------------|------------|------|-------------|--------------------|
| | N | % | Avg Cost | % total cost |
| 0 | 2,907,007 | 75.0 | \$ 3,173 | 55.0 |
| 1 | 695,961 | 18.0 | \$ 6,313 | 26.2 |
| 2 | 214,449 | 5.5 | \$10,098 | 12.9 |
| 3 | 47,008 | 1.2 | \$15,314 | 4.3 |
| 4 | 9,767 | .5 | \$21,263 | 1.2 |

2+ conditions are ~ 7% of population but ~20% of healthcare costs

Number of Multiple Chronic Conditions by Health Care Utilization and Cost



| # MCC's | | Purchased Care Only | MTF Only | Shared Care |
|---------|------------------|---------------------|----------------|-----------------|
| 1 | N | 315,996 | 152,637 | 227,328 |
| | Avg Outpt Visits | 11.6 | 6.5 | 10.7 |
| | Avg Inpt Stays | .15 | .11 | .17 |
| | Avg Cost | \$6,460 | \$4,918 | \$7,045 |
| 2 | N | 116,713 | 28,372 | 69,364 |
| | Avg Outpt Visits | 16.2 | 8.1 | 15.1 |
| | Avg Inpt Stays | .26 | .17 | .27 |
| | Avg Cost | \$10,217 | \$7,783 | \$10,844 |
| 3 | N | 28,655 | 2,855 | 15,498 |
| | Avg Outpt Visits | 22.0 | 10.9 | 20.4 |

Top 8 Multiple Chronic Condition Clusters and FY07 Cost



| MCC Cluster | N | % | Avg Cost | Additive Predicted Cost | Ratio |
|-------------------|--------|-----|----------|-------------------------|-------|
| Diabetes + HTN | 88,805 | 9.2 | \$8,970 | \$12,953 | .71 |
| HTN + LBP | 24,760 | 2.6 | \$9,404 | \$11,895 | .79 |
| HTN + Depression | 19,517 | 2.0 | \$9,780 | \$12,165 | .80 |
| Depression + LBP | 15,520 | 1.6 | \$12,076 | \$12,644 | .96 |
| COPD + HTN | 7,630 | 0.8 | \$11,597 | \$15,752 | .74 |
| Depression + SPMI | 7,393 | 0.8 | \$11,400 | \$15,524 | .73 |

Incremental Costs for Complex Chronic Illness When Paired with HTN, Depression, LBP and Diabetes



Mental health disorders contribute significantly to total costs.

MCC clusters with lowest incremental costs

| | |
|------------------|---------|
| HTN + Diabetes | \$1818 |
| HTN + LBP | \$2172 |
| HTN + Depression | \$2,231 |
| PTSD + Diabetes | \$2,323 |

MCC clusters with highest incremental costs

| | |
|-----------------------|---------|
| Stroke + Depression | \$7,480 |
| SPMI + LBP | \$7,041 |
| Stroke + Diabetes | \$6,863 |
| COPD + Diabetes | \$6,681 |
| COPD + Depression | \$6,661 |
| SPMI + Diabetes | \$6,232 |
| Depression + LBP | \$5,469 |
| Depression + Diabetes | \$5,241 |

Comparison of Complex Chronic Illness by TRICARE Prime Status



- Among Prime enrollees, more patients with asthma, depression, lower back pain, and PTSD.
- Among non-Prime enrollees more patients with hypertension, diabetes, COPD, and ischemic heart IHD.
- Prime enrollees have more single complex chronic conditions, but fewer multiple chronic conditions, most likely due to younger age.

| | Prime Status* | |
|-------------------|---------------|--------------|
| | No | Yes |
| Asthma | 4.8% | 6.3% |
| COPD | 6.4% | 2.5% |
| Diabetes | 33.1% | 19.4% |
| HTN | 55.3% | 46.1% |
| IHD | 4.1% | 2.0% |
| Depression | 18.0% | 24.6% |
| SPMI | 3.9% | 3.2% |
| Stroke | 1.5% | 0.8% |
| LBP | 15.4% | 25.1% |
| PTSD | 1.2% | 2.2% |

Adjusted Claims Cost by Prime Status and Location of Care



- Prime enrollees usually had higher claims cost after adjusting for differences in age, region, sex, number of outpatient visits in FY06, number of inpatient stays in FY06, and presence of other chronic conditions.

| Adjusted Increased Cost | HTN | Depression | LBP | Diabetes |
|----------------------------------|------------|------------|------------|------------|
| PRIME Enrollee | \$1,230 | \$291 | \$912 | \$2,382 |
| Purchased Care Only | Ref. Group | Ref. Group | Ref. Group | Ref. Group |
| Military Treatment Facility Only | \$(1,311) | \$(373) | \$(1,119) | \$(2,080) |
| Shared Care | \$593 | \$1,147 | \$972 | \$(798) |

Conclusions



- About 33% of TRICARE beneficiaries who submitted health care claims in FY2006 have one or more CCI, consistent with 2005-2006 AHRQ rates for the U.S. population, age 18–64, with private health insurance (32%).
- Results support need for **preventive health care**, particularly for illnesses related to health behaviors (e.g., diet, exercise, tobacco use) that may lead to or complicate hypertension, depression, diabetes, and COPD

Conclusions, cont.



- Findings are useful for planning and evaluating patient-centered medical homes with respect to:
 - Type of health care expertise most needed
 - Capacity needed
 - Patients who would benefit most from managed care interventions
- Lower rates of CCI among Prime enrollees due to younger age and perhaps level of complexity
- Higher rates of PTSD, depression and LBP among Prime enrollees most likely due to inclusion of all active duty service members within the Prime options

Recommendations



- Promote the use of MTF among those with complex chronic illness who can be managed effectively with primary care providers
- Set up patient-centered medical homes around most common multiple chronic conditions
- Integrate experienced mental health providers into patient-centered medical homes
- Develop and implement best practices for managing multiple complex chronic conditions within MTF and Primary providers



Questions?